CLAIMS

What is claimed is:

1. A method of reducing emissions of oxides of nitrogen from a combustion process using a temperature sensitive liquid reagent injected into a stream of exhaust gases from said combustion process and passing said exhaust gases and said reagent through a catalytic reactor which reduces the oxides of nitrogen in the presence of the reagent, said method comprising the steps of:

providing an injector having an orifice for atomizing said liquid reagent;

positioning a portion of said injector having said orifice within said stream of exhaust gases;

cooling said injector by continuously circulating said reagent therethrough, thereby keeping both said injector and said reagent within said injector below a critical temperature at which said reagent will solidify; and

injecting a portion of said reagent into said exhaust stream upstream of said reactor.

2. A method according to Claim 1, wherein said reagent is an aqueous urea solution.

3. A method according to Claim 2, wherein said urea has a concentration between about 25% and about 35%.

4. A method according to Claim 1, further comprising the steps of providing a surface facing said orifice within said exhaust gas stream, and further

atomizing said reagent injected into said exhaust gas stream by impinging said reagent onto said surface.

5. A method according to Claim 1, wherein said combustion process occurs within an internal combustion engine.

6. A method according to Claim 5, wherein said engine is a diesel engine.

7. A method according to Claim 6, wherein said reagent is injected into said stream of exhaust gases in proportion to selected engine operating parameters.

8. A method of reducing emissions of oxides of nitrogen from a combustion process using a liquid reagent injected through an injector into a stream of exhaust gases from said combustion process, wherein at least a portion of said injector being positioned within said stream of exhaust gases, said method comprising the steps of:

(1) continuously circulating said reagent through said injector to keep both said injector and said reagent within said injector below a critical temperature;

(2) injecting at least a portion of said reagent through said injector into said exhaust stream; and

(3) passing said exhaust gases and said reagent injected therein through a catalytic reactor to reduce the oxides of nitrogen.

9. A method according to Claim 8, wherein said reagent is an aqueous urea solution.

10. A method according to Claim 8, wherein said urea has a concentration between about 25% and about 35%.

11. A method according to Claim 8, wherein said injector has an orifice for atomizing said liquid reagent, and further comprising the steps of providing a surface facing said orifice within said exhaust gas stream, and further atomizing said reagent injected into said exhaust gas stream by impinging said reagent onto said surface.

12. A method according to Claim 8, wherein said combustion process occurs within an internal combustion engine.

13. A method according to Claim 8, wherein said engine is a diesel engine.

14. A method according to Claim 8, wherein said reagent is injected into said stream of exhaust gases in proportion to selected engine operating parameters.

15. A method according to Claim 9, wherein said critical temperature is between about 95°C and about 140°C.